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AUTHOR Prkachin, Kenneth M.; And Others
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ABSTRACT

Recent theories of depression that have attracted enthusiasm are those of Lewinsohn and Seligman. Lewinsohn's theory emphasizes the importance of deficits in social skill leading to reduced reinforcement, while Seligman's emphasizes the evolution of the depressive's belief that his responding and reinforcement are independent. The present study collected data relevant to both of these theories. Depressed, psychiatric control, and normal control subjects were exposed initially to a tripartite classical conditioning procedure designed to elicit aversive, pleasant, and neutral responses. Videotapes made of subjects' facial expressions during this initial session were shown to subjects from all three groups during a second session. During this second session subjects were required to guess which of the three different types of conditioning trial the subject they were observing was undergoing. Additionally, subjects were required to predict how well they would perform on three separate trials. Consistent with Lewinsohn's theory, results indicated that depressives were the most difficult of all subjects to observe. However, contrary to Seligman's theory, depressed subjects showed very close correlations between performance feedback and changes in their predictions regarding future performance, and were no different than other subjects. (Author)

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Kenneth M. Prkachin, Kenneth D. Craig

and Gunther Reith

University of British Columbia

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Nonverbal communication and response to performance feedback in depression

Kenneth M. Prkachin, Kenneth D. Craig and Gunther Reith
University of British Columbia

The present study evaluated selected aspects of recent behavioural and cognitive theories concerning the origin and maintenance of depressive behaviour. The conceptual background derives from Lewinsohn's (1974a, 1974b; Lewinsohn, Weinstein and Shaw, 1969) multifactorial formulation of depression, according to which a number of situational and personal factors are causally related to the production of a low-rate of response-contingent positive reinforcement. This state of affairs is hypothesized to be the critical eliciting condition for depressive behaviour which is thereafter maintained through processes such as social isolation and aversive feedback. A major personal factor contributing to depression-eliciting reinforcement-reduction has been identified as a lack of social-skill defined as the ability to emit behaviours that are reinforced and not to emit behaviours that are punished by others. Several studies have provided data consistent with the posited social-skill deficit (Lewinsohn, Weinstein, and Alper, 1970; Libet and Lewinsohn, 1973; Schaeffer and Lewinsohn, 1971).

An analysis of the concept of social skill suggests that two important components may be involved: (1) the ability to emit situationally appropriate behaviours which may be unambiguously identified and responded to discriminatively (expressive social communication) and (2) the ability to accurately identify and respond discriminatively to behaviour emitted by others (receptive social communication). In the present study we attempted to evaluate the extent to which depressed subjects exhibit deficits in these components of social-skill in a nonverbal communication paradigm.

The paradigm employed offered the potential to evaluate some aspects of the theories of Seligman (1972, 1975) and Beck (1967). Beck suggests that a primary triad of cognitive schemata, consisting of (1) a negative construction of experience, (2) a negative self-concept, and (3) negative expectations of future experience is responsible for depression. It would seem to follow from this conceptualization that at least the second and third of the above components of this primary triad should contribute to depressed subjects exhibiting more pessimism, relative to nondepressed controls, when required to predict their performance on a task.

Seligman suggests that depression occurs when an individual has acquired a set of "beliefs" or "expectations" that his behaviour and its outcome are independent of one another ("learned helplessness"). It follows from this position that depressed subjects should be relatively unlikely to change their estimations of future performance in the light of feedback regarding previous performance.

These aspects of Beck's and Seligman's theories were evaluated by requiring subjects to give verbal estimates of their anticipated performance during part of the nonverbal communication task.

Method

Three groups of 10 female subjects each -- depressed (D), psychiatric control (PC), and normal control (NC) -- were selected. D group subjects all had primary diagnoses of depression and were receiving treatment at Health Sciences Center Hospital at the University of British Columbia. PC group subjects were receiving treatment at the same hospital for psychiatric disorders other than depression (primarily sexual dysfunction). Depressed subjects all had Beck Depression Inventory (BDI) scores of 20 or greater while controls all scored less than 20 on this instrument.

Subjects participated in two experimental sessions -- the first involving a tri-partite differential classical conditioning procedure. In this session, three different coloured lights were used as conditioned stimuli for 3 different unconditioned stimuli, the first being presentation of an aversive 106 dB noise, the second, presentation of one of 15 "interesting" pictures, while the third -as a neutral event -- no stimulus was presented. Fifteen trials of each CS-UCS sequence were presented. Videotape recordings were made of subjects' facial expressions during a period of time beginning 4 seconds prior to CS onset and ending at CS offset.

In the second session, subjects were shown videotapes taken from the first session of 3 other subjects -- one from each diagnostic category. Subjects in this condition were designated "receiver" subjects and their major task was to observe 30 videotaped trials from session 1 of subjects (hereafter referred to as "senders") undergoing the conditioning procedure and to identify on each trial the type of conditioning trial the sender subject was experiencing. The only cues receivers had on which to base their judgement were changes in senders' facial expressions.

Receiver subjects were also required, prior to observing each set of 30 videotaped excerpts from sender subjects, to predict the number of trials, out of 30, that they expected to identify correctly. Subsequent to each of the 30 judgements of three sender subjects, receivers were given informative feedback as to -hat the correct response was, and at the end of each set of 30 excerpts, subjects were told how many trials they had correctly identified.

Results

An analysis of variance evaluated the contribution of type of sender and type of receiver to performance on the task. Results showed that depressed senders

were the most difficult of all to judge correctly, and that performance of all receiver subjects improved significantly during viewing of the second 15 trials for each sender. There was a significant interaction between class of sender, class of receiver and trial-blocks. Further analyses of the total number of correct and incorrect choices of each of the three response categories revealed little in the way of consistent response predispositions on the part of receivers, or consistent emission of a particular stereotyped response on the part of the senders.

Analysis of variance of receiver subjects verbal estimates of their anticipated performance revealed no significant differences as a function of diagnostic category. However, in an attempt to assess the effects of performance feedback on changes in subjects' ratings, we correlated difference scores reflecting changes in subjects' verbal estimates of their anticipated performance from the viewing of the first to the second and the second to the third set of videotapes with the discrepancy between subjects' predicted performance and actual performance on the viewing of the first and second set of videotapes, respectively. The magnitudes of these correlations, calculated separately for each diagnostic group, are direct indicants of the extent to which subjects changed their ratings as a function of prior discrepancies between anticipated performance and actual performance. The correlations (Table 1) between change in predictions from the first to the second presentation of videotapes and the discrepancy between predictions and actual performance on the first presentation of videotapes were strong, positive, and significant. Correlations for subsequent blocks were of similar magnitude. Thus, these data show, on the whole, that subjects in all groups changed their ratings as a function of the relationship between their prior rating behaviour and its outcome.

Discussion

Owing to time limitations, only the major implications of these findings can be highlighted. Analyses of the judgemental data seem to provide clear support for the specific hypothesis that depressed individuals exhibit a deficit in nonverbal communication behaviour and the general hypothesis that these individuals are characterized by a lack of social skill. Depressed subjects were the most difficult senders to judge correctly while no differences were found between the normal and psychiatric control subjects. That this difference occurred only for depressed senders suggests that this social skill deficit may be specific to the "expressive" component of social communication as defined earlier.

Loeb, Beck, and their colleagues have used probability of success estimates to demonstrate differences between depressed and nondepressed subjects in response to experimentally manipulated success and failure on various tasks (Loeb, Beck, Diggory, and Tuthill, 1967; Loeb, Beck, and Diggory, 1971). The present study used an analogous dependent variable -- predictions of expected performance on the judgemental task. It was expected that at least 2 components of Beck's "primary triad" -- negative conception of the self, and negative expectations with regard to the future -- would result in generally lower estimates of probability of success for depressed subjects. Analyses of subjects' estimates of success revealed that this was not the case.

Further correlational analyses were performed on these data in an attempt to test some predictions derived from Seligman's "learned helplessness" theory. Whatever the origins of this phenomenon, its critical feature is said to be the individual's expectation that behaviour and its outcome are independent, noncontingent events. It follows from this theory that, relative to nondepressed subjects, depressives' ratings of their expectancies for success on a given task should be

random, and should remain relatively unaffected by feedback regarding their performance. The data from the present study showed exactly the opposite -- that depressed subjects and controls tended to change their predictions of their performance in a direction dictated by the discrepancy between the prior predictions and the outcome of their performance.

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Table 1. Correlations between difference scores reflecting (1) change in predictions and (2) discrepancy between predictions and performance.

Difference 1	Difference 2	Group NC	PC	D
$P_2 - P_1$	$A_1 - P_1$	.78**	.90**	.88**
$P_3 - P_2$	$A_2 - P_2$	.08	.77**	.71*
$P_3 - P_2$	$A_1 - P_1$	.47	-.13	-.05

P = prediction of performance; A = actual performance; subscripts refer to ordinal position of prediction or actual performance

** $p \leq .01$

* $p < .05$